

WHAT IS CLAIMED IS:

1. An over-current protection circuit for preventing damage to a television receiver due to excessive beam current, said television receiver including a high voltage generating circuit for supplying a beam current to a picture tube, said high voltage  
5 generating circuit having a control input, wherein said over-current protection circuit comprises:

means for directly detecting the beam current;

means for comparing the detected beam current with a predefined threshold level; and

means, coupled to the control input of said high voltage generating circuit, for generating a control signal, in dependence on said comparing means, for turning off said high voltage generating circuit.

2. The over-current protection circuit as claimed in claim 1, wherein said control signal generating means comprises means for latching said high voltage generating circuit in an off state.

3. The over-current protection circuit as claimed in claim 1, wherein said over-current protection circuit further comprises:

means for generating a reference signal equivalent to said threshold level; and

5 temperature compensating means for making said reference signal temperature independent.

4. The over-current protection circuit as claimed in claim 1, wherein said over-current protection circuit further comprises:  
means for preventing said control signal generating means from erroneously generating said control signal due to picture tube arcing and/or random noise.

5. The over-current protection circuit as claimed in claim 1, wherein said means for directly detecting the beam current comprises:

a voltage supply coupled to said high voltage generating circuit for supplying said beam current; and

a measuring resistor in series with said voltage supply and said high voltage generating circuit,  
wherein a voltage across said measuring resistor is proportional to the beam current.

6. The over-current protection circuit as claimed in claim 3, wherein said means for generating a reference signal comprises:

a voltage supply for supplying a constant voltage;

a resistance divider coupled to said voltage supply; and

5           a transistor having a base coupled to an interconnecting node of said resistance divider, a collector coupled to said voltage supply, and an emitter for supplying said reference signal.

7.           The over-current protection circuit as claimed in claim 6, wherein said temperature compensating means comprises a series arrangement of diodes connecting said resistance divider to ground.

8.           The over-current protection circuit as claimed in claim 2, wherein said control signal generating means comprises:

            a first transistor coupled to an output of said comparing means;

            a second transistor coupled to said first transistor; and

            a voltage source coupled to said second transistor,

            wherein said latching means connects said second transistor to said control input of said high voltage generating circuit, whereby when said detected beam current is greater than said predefined

10           threshold level, said comparing means turns on said first transistor which, in turn, turns on said second transistor thereby dropping a voltage at said control input to substantially a zero voltage potential.